

**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION**

**FAIR FIGHT ACTION, INC., *et al.*,**

**Plaintiffs,**

**v.**

**BRAD RAFFENSPERGER, *et al.*,**

**Defendants.**

**CIVIL ACTION FILE  
NO. 1:18-CV-5391-SCJ**

**ORDER**

This matter is before the Court on Defendants’ Motion to Exclude the Testimony of Dr. Alex Halderman (“Dr. Halderman”) pursuant to Federal Rule of Evidence 702 (Doc. No. [401]).<sup>1</sup> On September 22, 2020, the Court held oral argument on all pending motions to exclude expert testimony. It took those motions under advisement, and now issues the following Order.

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<sup>1</sup> All citations are to the electronic docket unless otherwise noted, and all page numbers are those imprinted by the Court’s docketing software.

## **I. BACKGROUND**

Dr. Halderman holds several degrees from Princeton University, including a Ph.D. in computer science. Doc. No. [239], p. 2. He is presently a professor of computer science and engineering at the University of Michigan. Id. His research centers on computer security and privacy, including a focus on election cybersecurity. Id. He directs or works with several cybersecurity and election security organizations, has testified before Congress on election cybersecurity, has extensively published in these areas, and has worked with elections officials elsewhere to test election security. See id. at 2–3.

Dr. Halderman opines “on the security of Georgia’s election system following the implementation of new technology” that Georgia certified for use in 2019. See id. at 4. He also opines “on the security of Georgia’s election system as it was used in 2018.” Id. at 36.<sup>2</sup> Dr. Halderman concludes that “Georgia’s election system faces a high risk of being targeted by sophisticated adversaries” (id. at 7) and that its system was “highly susceptible to cyberattacks” in 2018 (id.

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<sup>2</sup> This section focusing on what vulnerabilities may have existed in Georgia’s voting system as of the 2018 election occupies only about six of the report’s forty-two pages and bases its findings on Dr. Halderman’s prior experience with the type of machines used rather than a review of the machines actually used. Doc. No. [239], pp. 36–42.

at 37). To reach these conclusions, Dr. Halderman reviewed documents from one of Georgia's election technology vendors and assessed other components of Georgia's voting-system technology based on outside research and his experience in the field. See id. at 4-5.

For much of his report, Dr. Halderman details specific aspects of Georgia voting technology and explains how the system could have been or later may be infiltrated, attacked, corrupted, or otherwise compromised in a manner that could alter the outcome of an election without detection. See id. at 7-42. Dr. Halderman states that these susceptibilities exist because "Georgia's new voting technology does not achieve the level of security necessary to withstand an attack by a sophisticated adversary." Id. at 9. Ultimately, Dr. Halderman's report explains these weaknesses and shows how they may be exploited, but it does not show or even surmise that such an attack has occurred.

**A. Defendants' Arguments**

Defendants move to exclude Dr. Halderman's testimony, asserting it is not reliable or relevant to the issues in this case. Doc. No. [401], p. 5. They argue that Dr. Halderman's opinions are not reliable because he does not quantify the risks he describes – he instead "simply list[s] possibilities, with no explanation of how

likely it is that each scenario actually will occur.” Id. at 7.<sup>3</sup> Further, Defendants argue, Dr. Halderman fails to explain the standard he used to determine how “risky” Georgia’s election system is. Id. at 7–8. They suspect that Dr. Halderman approached his task believing that using hand-marked paper ballots is the only safe voting system and then identified faults in Georgia’s electronic voting system to reach his pre-formed conclusion. See id. at 8–9. As a result, Defendants argue, Dr. Halderman is not offering objective, scientific opinions about Georgia’s election system as much as “he is advocating for his preferred method of conducting elections.” Id. at 9.

Defendants also find fault in Dr. Halderman’s methodology, arguing he “fail[ed] to conduct an effective and reliable review of Georgia’s election system” because he did not personally examine any component thereof and based his opinions instead on experience with similar systems and a review of the vendor’s documentation. Id. at 10–11; Doc. No. [513], pp. 8–9 (asserting that Dr. Halderman “knows almost nothing about how Georgia’s new election machines

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<sup>3</sup> Defendants reiterate this point in their reply brief, reasoning that while Dr. Halderman need not necessarily give exact percentages of likelihood that the voting system was hacked, he should have opined as to whether it was “likely” that the system was hacked rather than offering “imprecise and unspecific” opinions that the alleged voting-system vulnerabilities create a possibility of hacking. See Doc. No. [513], pp. 6–7.

function”). Defendants list many features of Georgia’s voting system that Dr. Halderman has not examined or even studied firsthand. Doc. No. [401], p. 11. They also illustrate how Dr. Halderman’s opinions about cyberattacks amount to hypotheticals about what *could* happen and do not attempt to allege what *has* happened. See id. at 11–12.<sup>4</sup>

Defendants also argue that Dr. Halderman’s opinions are not relevant to this litigation. Id. at 12. They point out that the opinions mostly concern Georgia’s new voting system, which is not at issue in this case. Id. at 13.<sup>5</sup> Further, they argue that Dr. Halderman’s opinions are irrelevant to Georgia’s election system because he failed to evaluate the system directly and instead imported his own “philosophical determination” that the system is insecure. See id. Defendants urge that because Dr. Halderman evaluated indirect evidence and *other* states’ voting systems to reach his conclusion that hostile parties “may” attack Georgia’s voting systems, his opinions are unreliable and imprecise to the point of being

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<sup>4</sup> Defendants double down on this argument in their reply brief, emphasizing that Dr. Halderman did not obtain relevant information from state officials and that he has failed to identify any instances in which hackers actually attacked Georgia’s voting machines or altered votes. Doc. No. [513], pp. 5–6.

<sup>5</sup> Defendants’ reply brief furthers this point by citing Plaintiffs’ admission that they are not challenging Georgia’s voting system technology. Doc. No. [513], p. 2.

unhelpful to the Court. Id. at 14–15. Finally, Defendants argue that he failed to connect his opinions to a core issue in this lawsuit because he did not analyze or opine on the racial impacts of potential cyberattacks. Id. at 3; Doc. No. [513], p. 10.

**B. Plaintiffs’ Response**

Plaintiffs respond first by emphasizing the importance of election system integrity and how technology issues in that system can undermine the public’s trust in the vote. Doc. No. [475], p. 6. They then assert that Dr. Halderman reviewed Georgia’s voting technology, based his report on sound methodology, and has shown that Georgia’s old and new voting systems were and are insecure. Id. at 7. They maintain that his opinions will help the factfinder determine whether Georgia’s voting system is insecure to the point that it “impose[s] severe burdens on Georgians’ right to vote.” Id. Indeed, they assert that voting system issues effectively denied or suppressed many Georgians’ right to vote in 2018 (see id. at 10–13), and they claim Dr. Halderman’s opinions about the system’s cybersecurity vulnerabilities support their claim of voter suppression (see id. at 13–15).

Plaintiffs contend that Dr. Halderman's methodology is reliable. Id. at 18. They appear to describe his methodology as follows: he reviewed documents, including documents directly from the voting machine vendor, relating to the voting system's designs; he described those designs, including individual components and how they interacted with each other; and, relying on his professional experience and review specific to Georgia's voting system, he opined on the system's susceptibility to specific threats based on the flaws he was able to identify from his analysis, finding Georgia's technology is poorly equipped to withstand an attack from a hostile party.<sup>6</sup> See id. at 19–21. Plaintiffs argue that he applied his research findings and experience in the field to reach his conclusions. See id. at 20. And they point to the many entities that have relied on Dr. Halderman's testimony, including this Court in a separate case. Id. at 22–24 (citing orders from Curling v. Kemp, No. 1:17-CV-2989-AT (Totenberg, J.)).

As to relevance, Plaintiffs argue that Dr. Halderman's opinions are relevant because Defendants' embrace and use of the vulnerable machines at

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<sup>6</sup> Responding to Defendants' arguments that Dr. Halderman did not quantify the risks he discusses, Plaintiffs argue that an expert need not quantify his opinion if the expert is testifying based on knowledge, training, and experience. Doc. No. [475], pp. 20–21.

issue have suppressed and will continue to suppress voters of color. Id. at 26–28.<sup>7</sup> Finally, Plaintiffs contend Dr. Halderman’s opinions are helpful because he opines on a subject—election cybersecurity—that is technical and beyond the understanding of the average lay person. Id. at 25–26.

## II. LEGAL STANDARD

### A. The Gatekeeping Function of Trial Courts

Trial courts serve an important gatekeeping role regarding the admissibility of expert testimony. See Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 589 (1993) (“[T]he trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.”); see also Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 152 (1999) (“The objective . . . is to ensure the reliability and relevancy of expert testimony.”). Thus, the trial court must examine “the foundations of expert opinions to ensure they meet the standards for admissibility.” United States v. Frazier, 387 F.3d 1244, 1260 (11th Cir. 2004) (emphasis omitted) (citing McCorvey, 298 F.3d at 1257).<sup>8</sup> However, the

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<sup>7</sup> Plaintiffs illustrate this point by sharing the experiences of individual voters who encountered various irregularities at the polls in 2018. See Doc. No. [475], pp. 10–11.

<sup>8</sup> It is within the district court’s discretion whether to hold a Daubert hearing to help decide issues concerning an expert’s adequacy to testify. See Cook ex rel. Estate of



Eleventh Circuit has held that this standard is “relaxed” when no jury is involved:

Th[e] barriers [of Rule 702] are even more relaxed in a bench trial situation, where the judge is serving as factfinder and we are not concerned about dumping a barrage of questionable scientific evidence on a jury. There is less need for the gatekeeper to keep the gate when the gatekeeper is keeping the gate only for himself.

United States v. Brown, 415 F.3d 1257, 1268–69 (11th Cir. 2005) (internal quotations and citations omitted).

**B. Federal Rule of Evidence 702**

Federal Rule of Evidence 702 allows a qualified expert to give opinion testimony when it is necessary to help the trier of fact understand the issues, the opinion is based on sufficient facts or data, it was produced using reliable principles and methods, and those principles and methods were reliably applied to the facts of the case. Fed. R. Evid. 702. The Eleventh Circuit employs a “rigorous” three-part inquiry to determine if these admissibility criteria are met.

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Tessier v. Sheriff of Monroe Cty., Fla., 402 F.3d 1092, 1113 (11th Cir. 2005) (“Daubert hearings are not required, but may be helpful in complicated cases involving multiple expert witnesses.”) (citation omitted). The Court held oral argument on all pending motions to exclude expert testimony on September 22, 2020.

City of Tuscaloosa v. Harcross Chems., Inc., 158 F.3d 548, 562 (11th Cir. 1998).

Expert testimony is admissible when:

(1) the expert is qualified to testify competently regarding the matters he intends to address; (2) the methodology by which the expert reaches his conclusions is sufficiently reliable as determined by the sort of inquiry mandated in Daubert; and (3) the testimony assists the trier of fact, through the application of scientific, technical, or specialized expertise, to understand the evidence or to determine a fact in issue.

Id. Thus, the admissibility of an expert's opinion turns on three things: qualifications, reliability, and helpfulness. "The burden of establishing qualification[s], reliability, and helpfulness rests on the proponent of the expert opinion." Frazier, 387 F.3d at 1260; see also Allison, 184 F.3d at 1312 (stating that the proponent has the burden to show reliability by a preponderance of the evidence).

### *1. Qualifications*

An expert may be "qualified" in many ways. Frazier, 387 F.3d at 1260. Federal Rule of Evidence 702 makes clear that expertise can arise from "knowledge, skill, experience, training, or education." Fed. R. Evid. 702. The trial court must ensure that an individual's experience provides an appropriate

foundation for asserting the opinions in question. Frazier, 387 F.3d at 1262. Determining that a witness is qualified to form an opinion, however, is a separate and distinct inquiry from whether that opinion has a reliable basis. Quiet Tech. DC-8, Inc. v. Hurel-Dubois UK Ltd., 326 F.3d 1333, 1341 (11th Cir. 2003). In other words, a witness can be qualified yet offer unreliable testimony. Id. at 1342.

## 2. *Reliability*

The reliability inquiry focuses solely on the principles and methodology underlying the expert's opinion, *not* the expert's conclusions. Daubert, 509 U.S. at 595. Thus, the question is not whether the expert's opinion is correct but whether the basis on which it rests is reliable. Allison, 184 F.3d at 1312. Generally, if the principles, theories, and methodologies behind the opinion are scientifically valid and can be applied to the facts at issue in the case, then the opinion has a reliable basis. Daubert, 509 U.S. at 592–93.

In Daubert, the Supreme Court discussed four factors that the trial court might consider in its reliability inquiry: (1) whether the methodology has been (or can be) tested, (2) whether the methodology has been subject to peer review, (3) whether the methodology has a high rate of error, and (4) whether or not the methodology is widely accepted within the scientific community. Id. at 593–94.

This list, however, is not comprehensive. Id. at 593 (“Many factors will bear on the inquiry, and [there is no] definitive checklist or test.”). The trial court is not limited to the Daubert factors and may consider other questions in light of the specific facts of the case at hand. Kumho, 526 U.S. at 152 (“[W]hether Daubert’s specific factors are, or are not, reasonable measures of reliability in a particular case is a matter that the law grants the trial judge broad latitude to determine.”) (emphasis omitted); see also Allison, 184 F.3d at 1312 (noting that the factors listed in Daubert are not exhaustive). Trial courts have considered other factors such as whether an expert relied on “anecdotal evidence (as in case reports), temporal proximity, [or] improper extrapolations (as in animal studies).” Allison, 184 F.3d at 1312.

Moreover, there is an important distinction between scrutinizing the reliability of an expert opinion’s underlying methodology (or principles) and scrutinizing the expert’s application of that methodology. Quiet Tech., 326 F.3d at 1343. Challenging the underlying methodology in general is an admissibility issue; challenging the expert’s application of that methodology is an accuracy issue. Id. at 1344, 1344 n.11, 1345. Issues of accuracy are best resolved through cross-examination and the adversarial process. Id. at 1345; see also Bazemore v.

Friday, 478 U.S. 385, 400 (1986) (“Normally, failure to include variables will affect the analysis’ probativeness, not its admissibility.”).

### 3. *Helpfulness/Relevance*

The helpfulness prong of the inquiry requires that an expert’s testimony involve matters beyond the understanding of the average lay person such that it is helpful to the trier of fact. Frazier, 387 F.3d at 1262. The testimony must also have a “valid scientific connection to the disputed facts in the case.” Daubert, 509 U.S. at 591. The expert may be qualified and the basis for the opinion may be reliable, but if the opinion is not necessary for resolving the issues in the case, then the opinion is not relevant and should not be admitted. See id. (“Expert testimony which does not relate to any issue in the case is not relevant and, ergo, non-helpful.”) (citation omitted).

### III. ANALYSIS

Defendants move to exclude Dr. Halderman’s testimony on the grounds that his “opinion is neither reliable nor relevant to the issues in this litigation.”

Doc. No. [401], p. 5.<sup>9</sup>

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<sup>9</sup> Defendants do not contest Dr. Halderman’s expertise. Doc. No. [401], p. 5. Given Dr. Halderman’s education, research, and prolific contributions to this field, the Court agrees that he is qualified as an expert in computer and election cybersecurity.

**A. Dr. Halderman's Opinions Are Not Unreliable**

While Defendants present strong arguments on this factor, the Court finds that Dr. Halderman's methodology is reliable for Daubert purposes. Dr. Halderman does himself no favors by not clearly explaining his methodology in his report. But Plaintiffs distill his methodology for him: Dr. Halderman relied on both his expertise in the field and his review of documents specific to Georgia's voting system to identify and assess the vulnerabilities of the State's voting system. Doc. No. [475], pp. 19-21.

Defendants argue that Dr. Halderman's methodology falls short because he did not directly review Georgia's election system and instead relied on subpoenaed documents about the system, information from related machines and systems, and his own industry experience. See Doc. No. [401], pp. 10-12. Undoubtedly, Dr. Halderman's failure to directly assess voting machines and other components of Georgia's voting system weakens his opinion. But the Court finds that, from a methodological standpoint, he has shown enough to survive a Daubert motion. He has significant experience analyzing election systems and computer code substantially similar to that used in Georgia. He reviewed documents concerning the voting machines' coding and setup from the machines'

vendor. He otherwise has a wealth of relevant experience to draw from. Collectively, these sources provide a base of information from which Dr. Halderman can reliably reach his conclusions. Whether Dr. Halderman could have relied on better or more direct sources of information goes more to weight and would be better addressed via cross-examination.

Defendants also argue Dr. Halderman's opinions are unreliable because he fails to quantify the risks he describes or explain how likely a hacking attack was or is. Defendants are right that this shortcoming would dilute the utility of Dr. Halderman's opinions to this case. Its imprecision diminishes the Court's ability to draw a concrete finding from it. But given the inherently surreptitious nature of the type of hacking Dr. Halderman describes, the Court understands that attempting to quantify the likelihood of whether the system was or will be hacked would be a difficult—and perhaps disingenuous—exercise.<sup>10</sup> The Court finds that identifying the vulnerability and potential for hacking without quantifying it does not create a reliability issue that would require excluding the opinion. But it certainly would be fair game for cross-examination.

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<sup>10</sup> That would effectively require him, among other things, to quantify the intent of unknown third-party actors, which would be an impossible task.

**B. Dr. Halderman's Opinions Are Not Relevant to This Case**

The Court agrees with Defendants that Dr. Halderman's opinions are not relevant to this case. As Defendants argue, Dr. Halderman's report relates mostly to a new voting system that is not challenged or directly at issue in this lawsuit. And Defendants' contentions about the imprecision of Dr. Halderman's opinions matter in this prong. To the extent he discusses the election system at issue in this lawsuit—that in place in 2018—he spends only a fraction of his report opining that it was susceptible to attack. And be that as it certainly may, he does not connect how this susceptibility relates to the claims in the lawsuit.

Plaintiffs try to connect the dots for him through briefing, attempting to stitch Dr. Alderman's report into relevance by offering the following line of reasoning: (1) Dr. Halderman has shown that Georgia's 2018 voting system was susceptible to hacking; (2) voters, including voters of color, experienced certain irregularities and issues at the voting polls in 2018; and (3) Defendants thus effectively suppressed voters of color by maintaining a voting system that was susceptible to hacking.

Plaintiffs present these points but fail to build the bridges connecting them. First, Dr. Halderman's assertions that the system was merely "susceptible" to



hacking fail to give the Court a conclusion concrete enough to connect to the other points Plaintiffs make. As Defendants argue, many systems *may* be susceptible to attack, but that alone tends not to be informative. Here, while Dr. Halderman may not be required to quantify precisely how likely it is that voters of color were affected by hackers, the fact that he reaches conclusions as to a mere vulnerability while not opining on whether a hacking occurred reduces the Court's ability to find that alleged issues in Defendants' voting system resulted in harm to voters of color. Indeed, neither Dr. Halderman nor Plaintiffs directly connect the voting system's susceptibility with the irregularities that the declarant voters experienced in 2018.<sup>11</sup> That is likely because they cannot show that hacking

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<sup>11</sup> To be sure, Plaintiffs juxtapose the experiences of these voters (see Doc. No. [475], pp. 10–11) with assertions that Defendants' use of vulnerable election technology heightens voters' concerns about the integrity of the voting process (see id. at 11–12, 26–28). But Plaintiffs then conclude without material support that these vulnerabilities specifically suppress voters of color and convince them that "their vote will not count." Id. at 26. Plaintiffs quote Dr. Halderman to show that voting-system vulnerabilities have a racial effect, but Dr. Halderman said only that these issues "could have" such an effect. Id. at 28. Thus, Dr. Halderman's opinions as presented would leave the Court with the proposition that voting-system vulnerabilities *could have* led to attacks that *could have* had a racial impact—these connections are too attenuated to make Dr. Halderman's opinions relevant. And to the extent such vulnerabilities cause voter concern with the election system, the Court finds that Dr. Halderman and Plaintiffs did not sufficiently distinguish how this concern disproportionately affects voters of color. These failed connections matter as to relevance: Because the Court cannot find that Dr. Halderman's opinions relate to suppression of voters of color, the Court cannot find that his opinions

caused the specific issues that those voters experienced. While it is certainly *possible* hacking caused those issues, it is also possible that these issues stemmed from problems entirely unrelated to hacking. The Court would again unhelpfully be left without information or a conclusion concrete enough to find Dr. Halderman's opinions relevant to the case.

Finally, no one directly bridges the gap to the conclusion that this susceptibility suppresses voters of color. Plaintiffs would make headway if they presented allegations that hackers directly targeted voters of color. But they do not.<sup>12</sup> The Court is instead left with the allegation that voting system vulnerability discourages voters of color from turning out to exercise their franchise. That may be the case, but such system-wide vulnerabilities appear just as likely to aggrieve other voters.<sup>13</sup> Thus, the Court cannot reasonably draw the inference from Dr. Halderman's testimony that the alleged voting system

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are relevant to this case.

<sup>12</sup> And by extension they do not indicate that any other voting blocs are more or less likely to be the subject of a concerted hacking attempt to suppress the vote.

<sup>13</sup> Indeed, Plaintiffs begin their response brief as follows: "Nearly half of the public has concerns about the security of American elections." Doc. No. [475], p. 6.

susceptibilities especially affect the voters at issue in this lawsuit. Ultimately, that leaves Dr. Halderman's opinions disconnected from the issues of this case.

Dr. Halderman is clearly an expert in voting cybersecurity, and his report discloses serious concerns with Georgia's voting technology that hopefully continue to foster fruitful dialogue and action on the subject. He doubtless deserves credit for his important work in this field. But despite its many merits, his testimony simply does not relate to this litigation closely enough to warrant including it.

#### **IV. CONCLUSION**

For the foregoing reasons, Defendants' Motion to Exclude the Testimony of Dr. Alex Halderman pursuant to Federal Rule of Evidence 702 (Doc. No. [401]) is **GRANTED**.

**IT IS SO ORDERED** this 8th day of December, 2020.

s/Steve C. Jones

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**HONORABLE STEVE C. JONES**  
**UNITED STATES DISTRICT JUDGE**